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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,418	10/22/2003	Yixing Lin	008716	6173
61285 7590 12/29/2009 Ashok K. Janah 650 DELANCEY STREET, SUITE 106 SAN FRANCISCO, CA 94107			USA/CPS/IBSS/LAP	
EXAMINER				
MILLER, DANIEL H				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
12/29/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/691,418

**Applicant(s)**

LIN ET AL.

**Examiner**

DANIEL MILLER

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12/11/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 18-20, 23, 24 and 26-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-20, 23, 24 and 26-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/11/2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 18-20, 23-24, 26-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (US 2003/0185965A1) in view of Lin (US 2003/0026917A1), further in view of Garg (US 5,009,966).

It is noted that the claims examined are product by process claims where the examiner has interpreted the claims as pertaining to the article that is the final product of the process. The intermetallic compound is removed during applicant's claimed

product by process and is therefore not present in the final product (see applicant's claim 18 (ii)).

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.", (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

**Lin et al (US 2003/0185965A1)**

Lin '965 teaches a substrate processing chamber component comprising: (a) a structure shaped to be a chamber enclosure wall, gas shield, cover ring or deposition ring, the structure made from stainless steel, aluminum, titanium, copper, copper alloy, quartz or aluminum oxide; and (b) a textured coating on the structure, textured coating: (i) made from aluminum, silicon, aluminum oxide, boron carbide or titanium oxide, and (ii) consisting essentially of substantially flower shaped surface grains that are sized from about 0.1 to about 5 micron (claim 20 Lin '965).

Given that the structure of the disclosed art and the claimed invention are substantially similar with both having substantially similar surface roughness (see table 1 Lin'965) and thickness [0052] with substantially similar deposition techniques [0051] they would be expected to have like physical characteristics, as claimed by applicant. No patentable distinction is seen.

While Lin '965 teaches a metal coating over the titanium coating it does not teach a titanium coating over the titanium substrate.

**Lin (US 2003/0026917A1)**

Lin '917 teaches a plasma-processing chamber including walls [0002, Lin '917]. The surface is bead blasted to create surface roughness [0040, Lin '917], creating enhanced bonding of a top metal layer. The surface roughness is within applicant's claimed range [0040 page 5]. The underlying structure can be aluminum and the coating can comprise titanium (claim 5 reference Lin '917).

The coating can be a twin wire arc spray coated layer (see [0043-0046]). The titanium comprising coating can be textured as well (see [0050] and figure 3 Lin '917).

Given that the structure of the disclosed art and the claimed invention are substantially similar and both undergo a bead blasting to a substantially similar surface roughness they would be expected to have like physical characteristics, as claimed by applicant.

Lin, discussed above, is silent as to the base material being titanium. However, in the only disclosed embodiment, Lin teaches, the gas shield 150 is made of aluminum coated with a thin layer of aluminum oxide [23]. Which is a metal base material

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(aluminum) with a like metal (aluminum) oxide coating. Since Lin also teach the chamber components can have a titanium oxide coating (claim 5 Lin '917).

Neither Lin reference teaches a titanium coating on a titanium substrate.

**4. Garg (US 5,009,966)**

5. Garg teaches a titanium or titanium alloy substrate a hard metal coating to protect against oxidation (abstract) similar to the functionality of the both Lin references coating; and further demonstrates that one of ordinary skill would look to a titanium base material for use in an oxidation protective environment.

6. The substrate of Garg is further capable of refurbishment as claimed by applicant. No patentable distinction is seen.

1. It would have been obvious to use the titanium base material or outer coating as taught by Garg or Lin '965 and Lin '917 because of its inherent wear resistance valuable in applications of chamber construction and oxidation protection and to provide a like base metal material with like coating as taught to be preferred by Lin '917. Further, the like metals found in the base and coating necessarily aids in adhesion of the coating in high temperature environments (such as a chamber component). It would further be obvious to provide a titanium twin wire arc spray coated layer (see [0043-0046]) as disclosed by Lin '002 and one of ordinary skill would have expected to produce an advantageous structure for a chamber material refurbishment. No patentable distinction is seen.

***Response to Arguments***

2. Applicant's arguments filed 10/19/2009 have been fully considered but they are not persuasive.

3. Applicant's arguments that the product by process analysis given in the rejection is not applicable to any claim but claim 18 are incorrect. It is noted in particular applicant is in error in classifying claim 35 as having no process limitations (remarks page 3 of 13). It is noted that applicant claims a "twin-wire arc sprayed metal coating" in claim 35, which is a process limitation. The product by process analysis applies to those claims including but not necessarily limited to independent claims 18 and 35, and is meant to apply to those claims. Applicant is in error in asserting that there is a requirement for a separate rejection for non product by process claims. Applicant's argument that the arc spraying process claimed in the product claims provides a different structure distinct from the cited prior art is not supported by evidence on the record, only attorney argument and it is not convincing in light of the substantial similarity if not identical methods taught by the art of record. IT appears that the processes of the art of record and the instant claimed invention provide a substantially similar if not identical structure based on what is before the Examiner. Note that Lin (US 2003/0026917A1) teaches the coating can be a twin wire arc spray coated layer (see [0043-0046]). Rejections maintained over applicants asserted process differences.

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4. Further regarding claim 18, applicant argues that Lin '917 does not teach titanium coating. However, it is noted that it claims a coating comprising titanium; which would include a titanium metal coating and that Garg also teaches a titanium outer layer. It would have been obvious to use the titanium base material or outer coating as taught by Garg or Lin '965 and Lin '917 because of its inherent wear resistance valuable in applications of chamber construction and oxidation protection and to provide a like base metal material with like coating as taught to be preferred by Lin '917. Further, the like metals found in the base and coating necessarily aids in adhesion of the coating in high temperature environments (such as a chamber component).

5. No patentable distinction is seen.

6. Regarding claim 20, applicant argues that the combination of Garg with Lin '917 would not result in the claimed component which has a metal coating that is on the titanium structure, because Garg teaches providing a noble metal interlayer between a coating and an underlying structure and further emphasizes that this interlayer is necessary to prevent spalling (page 10 of 13 remarks). The examiner disagrees. The rejection is an obvious rejection wherein one of ordinary skill would understand that an interlayer would not be necessary for "like materials" that do not have bonding issues. Further, as would have been known to one of ordinary skill in the art the interlayer is not used in the combination of the references wherein the base reference does not employ interlayers and titanium is substituted for titanium oxide. No patentable distinction is seen.



7. Regarding claim 24, applicant argues that the combination of Garg with Lin '917 would not result in the claimed component which has a metal coating that is on the titanium structure, because Garg teaches providing a noble metal interlayer between a coating and an underlying structure and further emphasizes that this interlayer is necessary to prevent spalling (page 11 of 13 remarks). The examiner disagrees. The rejection is an obvious rejection wherein one of ordinary skill would understand that an interlayer would not be necessary for "like materials" that do not have bonding issues. Further, as would have been known to one of ordinary skill in the art the interlayer is not used in the combination of the references wherein the base reference does not employ interlayers and titanium is substituted for titanium oxide. No patentable distinction is seen.

8. Regarding claim 35, applicant argues that the combination of Garg with Lin '917 would not result in the claimed component which has a metal coating that is on the titanium structure, because Garg teaches providing a noble metal interlayer between a coating and an underlying structure and further emphasizes that this interlayer is necessary to prevent spalling (page 12 of 13 remarks). The examiner disagrees. The rejection is an obvious rejection wherein one of ordinary skill would understand that an interlayer would not be necessary for "like materials" that do not have bonding issues. Further, as would have been known to one of ordinary skill in the art the interlayer is not used in the combination of the references wherein the base reference does not employ interlayers and titanium is substituted for titanium oxide. No patentable distinction is seen.

9. Regarding claim 37, applicant argues that the combination of Garg with Lin '917 would not result in the claimed component which has a metal coating that is on the titanium structure, because Garg teaches providing a noble metal interlayer between a coating and an underlying structure and further emphasizes that this interlayer is necessary to prevent spalling (page 13 of 13 remarks). The examiner disagrees. The rejection is an obvious rejection wherein one of ordinary skill would understand that an interlayer would not be necessary for "like materials" that do not have bonding issues. Further, as would have been known to one of ordinary skill in the art the interlayer is not used in the combination of the references wherein the base reference does not employ interlayers and titanium is substituted for titanium oxide. No patentable distinction is seen.

10. Applicant in several places through out his arguments appears to argue that there would be no motivation to refurbish a component having a metal (titanium) substrate and provide a like titanium coating in light of the teachings of the reference. The examiner disagrees. The base reference specifically teaches refurbishing a titanium substrate component. So the question becomes what would be an appropriate coating? A variety of materials are taught by the base reference, just not titanium metal coatings. However the secondary reference teaches that such a coating is appropriate for substantially similar applications. Therefore it would be obvious to substitute the titanium coating in the instance of the based reference with a titanium substrate as part of the refurbishing process. No patentable distinction is seen.

11. Rejections maintained.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MILLER whose telephone number is (571)272-1534. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/  
Supervisory Patent Examiner, Art Unit 1794

Daniel Miller